Chapter 5

Exocentric Sensing & Delivery:

Facial Expressions

As described in Chapter 2, in the survey conducted towards understanding the non-verbal cue needs for people who are blind and visually impaired, they emphasized on the lack of access to facial expressions and mannerisms of their interaction partners. This is supported by the argument that most part of the non-verbal cues occur through visual facial mannerisms as described in Section 1.2.1 of Chapter 1. The face encodes a lot of information that is both communicative and expressive in nature. Unfortunately, the face is a very complex data generator and the encodings on the face are not very context sensitive and individualistic in nature. Evolving computing technologies have been focused on developing solutions towards understanding the nature of facial mannerisms and gestures, but most of this multi-modal affective interaction research has been focused on the development of sensors and algorithms that understand user's emotional state in a human-machine interaction scenario. These interactions are mostly unilateral in nature and directed primarily towards the machine interpreting the user's emotional state. That is, the machines become the primary consumers of the affective cues. But from the perspective of an assistive technology affect interactions have to be augmentations that enrich human-human interpersonal interaction, where the machines not only interpret user's affective state, but also delivers affect information through novel affect actuators. The focus of this chapter is on the sensing and delivery of facial mannerisms and gestures of interaction partners to the user of the Social Interaction Assistant.